Docket No.: GR 99 P 1915

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MAIL STOP: APPEAL BRIEF-PATENTS

By: _____ Date: June 6, 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

Applic. No.	:	09/994,197	Confirmation No.: 8423
Inventor	:	Thomas Reisinger, et al.	
Filed	:	November 26, 2001	
Title	:	Method and Device for Carrying Out Simplex Data Transmission	
TC/A.U.	:	2611	
Examiner	:	Kevin Y. Kim	
Customer No.	:	24131	

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Sir:

This is an appeal from the final rejection in the Office action dated December 6, 2006, finally rejecting claims 1-8 and 10-21. Appellants submit this *Brief on Appeal*, including payment in the amount of $500.00 to cover the fee for filing the *Brief on Appeal*. If an extension of time for this paper is required, petition for extension is herewith made. Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Real Party in Interest:

This application is assigned to Siemens Aktiengesellschaft of München, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-8 and 10-21 are rejected and are under appeal. Claim 9 was cancelled in an amendment dated August 13, 2004.

Status of Amendments:

No claims were amended after the final Office action. *A Response under 37 CFR § 1.116* was filed on February 6, 2007. The Primary Examiner stated in an *Advisory Action* dated February 20, 2007 that the request for reconsideration had been considered but did not place the application in condition for allowance.

Summary of the Claimed Subject Matter:

Independent claim 1:

In a radio access control system for a motor vehicle (see, for example, page 6 of the instant application, lines 8 - 14), a method for carrying out simplex transmission

of a data message modulated onto a carrier frequency (see, for example, page 5 of the instant application, lines 15 - 24; f_c of Fig. 1), which comprises:

wirelessly transmitting, in the radio access control system (see, for example, page 5 of the instant application, lines 23 - 24), a data message containing an access code (see, for example, page 2 of the instant application, lines 3 - 4) more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference (see, for example, page 5 of the instant application, lines 18 - 23);

changing the different carrier frequencies only within one single transmission channel (see, for example, page 13, lines 4 - 6) by detuning, with at least one capacitor, an oscillating crystal of a carrier frequency generator (see, for example, page 15 of the instant application, lines 3 - 7; See also, G, Q, C1,. C2, C3 of Fig. 1); and

receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency (see, for example, page 7 of the instant application, lines 9 - 13).

Independent claim 11:

In a radio access control system for a motor vehicle (see, for example, page 6 of the instant application, lines 8 - 14), a method for simplex radio transmission in a

radio access control system for a motor vehicle (see, for example, page 5 of the instant application, lines 15 - 24; f_c of Fig. 1), which comprises:

wirelessly transmitting, in the radio access control system (see, for example, page 5 of the instant application, lines 23 - 24), a data message containing an access code (see, for example, page 2 of the instant application, lines 3 - 4) more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference (see, for example, page 5 of the instant application, lines 18 - 23);

changing the different carrier frequencies only within one single transmission channel (see, for example, page 13, lines 4 - 6) by detuning, with at least one capacitor, an oscillating crystal of a carrier frequency generator (see, for example, page 15 of the instant application, lines 3 - 7; See also, G, Q, C1,. C2, C3 of Fig. 1); and

receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency (see, for example, page 7 of the instant application, lines 9 - 13).

Independent claim 12:

In a radio access control system for a motor vehicle (see, for example, page 6 of the instant application, lines 8 - 14), a device (see, Fig. 1) for carrying out simplex transmission of a data message modulated onto a carrier frequency (see, for

example, page 11 of the instant application, lines 11 - 13; see also, Fig. 1), comprising:

a carrier frequency generator (G of Fig. 1) for generating different carrier frequencies located only in a single narrowband channel, said carrier frequency generator having at least one capacitor and a detunable oscillator crystal detuned through said at least one capacitor (see, for example, page 14, lines 15 - 21; page 15, lines 3 - 7; and Q, C1,. C2, C3 of Fig. 1);

a transmitter modulating data messages containing an access code (see, for example, page 2 of the instant application, lines 3 - 4) with said carrier frequencies and wirelessly transmitting the data messages in temporal succession in the radio access control system (see, for example, page 12 of the instant application, line 26 - page 13, line 4); and

a receiver for receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency (see, for example, page 7 of the instant application, lines 9 - 13; and page 7 of the instant application, lines 18 - 20).

Independent claim 16:

In a radio access control system for a motor vehicle (see, for example, page 6 of the instant application, lines 8 - 14), a device (see, Fig. 1) for carrying out simplex transmission of a data message modulated onto a carrier frequency (see, for

example, page 11 of the instant application, lines 11 - 13; see also, Fig. 1), comprising:

a carrier frequency generator (G of Fig. 1) for generating different carrier frequencies located only in a single narrowband channel, said carrier frequency generator having at least one capacitor and a detunable oscillator crystal detuned through said at least one capacitor (see, for example, page 14, lines 15 - 21; page 15, lines 3 - 7; and Q, C1,. C2, C3 of Fig. 1);

a transmitter modulating data messages containing an access code (see, for example, page 2 of the instant application, lines 3 - 4) with said carrier frequencies and wirelessly transmitting the data messages more than one time using at least two different carrier frequencies in temporal succession in the radio access control system to increase immunity to interference, said carrier frequencies only changed to have said carrier frequencies occur within one single transmission channel (see, for example, page 12 of the instant application, line 26 - page 13, line 4); and

a receiver for receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency (see, for example, page 7 of the instant application, lines 9 - 13; and page 7 of the instant application, lines 18 - 20).

Independent claim 20:

In a radio access control system for a motor vehicle (see, for example, page 6 of the instant application, lines 8 - 14), a method for carrying out simplex transmission of a data message modulated onto a carrier frequency (see, for example, page 5 of the instant application, lines 15 - 24; f_c of Fig. 1), which comprises:

wirelessly transmitting to a receiver in the motor vehicle (see, for example, page 5 of the instant application, lines 23 - 24), a data message containing an access code (see, for example, page 2 of the instant application, lines 3 - 4) more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference (see, for example, page 5 of the instant application, lines 18 - 23);

changing the different carrier frequencies only within one single transmission channel (see, for example, page 13, lines 4 - 6) by detuning, with at least one capacitor, an oscillating crystal of a carrier frequency generator (see, for example, page 15 of the instant application, lines 3 - 7; See also, G, Q, C1,. C2, C3 of Fig. 1); and

receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency (see, for example, page 7 of the Instant application, lines 9 - 13).

Specification support:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention relates to a method for carrying out simplex data transmission of a data message modulated onto a carrier frequency, in particular, for simplex radio transmission in a radio access control system, and a device to carry out the method.

Appellants explained on page 2 of the specification, lines 4 - 7, that, in modern systems, the transfer of an access code via radio carries out user authentication. For the future, it is proposed to transmit user-specific data, which are required in order to control specific functions, along with the access code.

Appellants explained on page 5 of the specification, line 15, that, with the foregoing and other objects in view, there is provided, in accordance with the invention, a method for carrying out simplex transmission of a data message modulated onto a carrier frequency, including the steps of transmitting a data message more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference, and only changing the carrier frequencies such that the frequencies occur within one single transmission channel. Preferably, the method carries out simplex radio transmission in a radio access control system

Appellants explained on page 6 of the specification, line 1, that, the invention applies, in accordance with another mode of the invention, the fundamental concept of performing a multiple transmission of a data message that is to be transferred on at least two different carrier frequencies. The use of a different carrier frequency for each of the transmissions is particularly efficient.

Appellants explained on page 6 of the specification, line 8, that, the proposed measure is surprisingly advantageous, particularly in the case of low-cost radio access control systems for motor vehicles because such systems already use low-cost components with high tolerances (for example, crystals and surface wave filters) and, thus, – due to cost rather than for technical reasons – have a relatively broadband configuration. Small deliberate changes to the carrier frequency can, therefore, easily be made in such systems with no significant effect on the transmission parameters, or can easily be incorporated in the construction of such systems with no substantial impact on cost.

Appellants explained on page 6 of the specification, line 20, that, the proposed method, which is referred to below as the Frequency Offset Re-Transmission ("FORT") method, generally offers advantages, even in its commonest form, if the receiver reveals a performance dependency on the carrier frequency or the carrier frequency/interference frequency ratio, which can be derived even from statistical analysis, i.e., if the existence of an interference source is to be assumed beyond the possible transmission duration, the source, of course, has a specific, more or less broad interference frequency spectrum, and the probability of a reduction in the interference rises with an increase in the effective increase in bandwidth of the user data signal transmission - achieved through multiple transmission at different frequencies.

Appellants explained on page 7 of the specification, line 8, that, due to the tolerances, low-cost systems must have a more broadband construction than is

actually necessary. As such, the receiver is able to process not only signals at the nominal carrier frequency, but also signals with slightly deviating carrier frequencies (typically +/- 300 ppm) (→ receiver bandwidth).

Appellants explained on page 7 of the specification, line 15, that, the purpose of the change in the carrier frequency is to change the effect of the interference on the receiver, rather than to eliminate (narrowband) interference as in the case of multi-channel systems. To accomplish the change, the receiver performance must show a dependency on the carrier frequency/interference frequency ratio.

Appellants explained on page 7 of the specification, line 22, that, such a dependency may be more or less significant in different receiver configurations or implementations. If the carrier frequency/interference frequency ratio within the permitted receiver bandwidth has a significant effect on performance, in particular, if minor frequency changes produce substantial changes, the method according to the invention can be advantageously used. If, on the other hand, hardly any dependency can be identified, the method brings no improvements, but does not cause any disadvantages. Accordingly, the method can be used ubiquitously without disadvantageous effects (apart from a minimal increase in implementation cost).

Appellants explained on page 8 of the specification, line 9, that, the improvement achieved by the method according to the invention includes a statistically verifiable higher rate of successful message transmissions.

Appellants explained on page 11 of the specification, line 11, that, with the objects of the invention in view, there is also provided a device for carrying out simplex transmission of a data message modulated onto a carrier frequency, including a carrier frequency generator for generating different carrier frequencies, the carrier frequency generator having at least one capacitor and a detunable oscillator crystal detuned through the at least one capacitor, and a transmitter modulating data messages with the carrier frequencies and transmitting the data messages in temporal succession.

Appellants explained on page 11 of the specification, line 21, that, a very simple and low-cost option for implementing the different carrier frequencies entails the connection of at least one capacitor, preferably, a plurality of capacitors, with different capacitances and/or in different interconnections, to an oscillator crystal of the carrier frequency generator, which is detuned in a specific manner by the capacitor(s).

Appellants explained on page 12 of the specification, line 20, that, with the objects of the invention in view, there is also provided a device for carrying out simplex transmission of a data message modulated onto a carrier frequency, including a carrier frequency generator for generating different carrier frequencies, the carrier frequency generator having at least one capacitor and a detunable oscillator crystal detuned through the at least one capacitor, and a transmitter modulating data messages with the carrier frequencies and transmitting the data messages more than one time using at least two different carrier frequencies in temporal succession

to increase immunity to interference; the carrier frequencies only changed to have the carrier frequencies occur within one single transmission channel.

Appellants explained on page 14 of the specification, line 12, that, referring now to the figures of the drawings in detail and first, particularly to FIG. 1 thereof, there is shown a basic diagram illustrating a simple configuration of a detunable carrier frequency generator G. In the generator G, a conventional oscillator crystal Q is optionally connected through one of three capacitors C1, C2, C3 with different capacitances to ground (GND) and the oscillation frequency of the oscillator circuit O is influenced by the respective connected capacitor. The oscillator circuit O supplies a reference frequency f_R for a PLL circuit PLL, which - in a conventional manner - has a phase discriminator PD, a low-pass filter LP, a voltage-controlled oscillator VCO and an :N-divider D in the conventional circuit, and at whose output the carrier frequency f_C is provided as an N-fold of the reference frequency f_R. The capacitors C1, C2, C3 are connected by a carrier frequency control unit FC in accordance with a predefined routine (for example, stored in an internal program memory of the frequency control unit). The capacitances of the capacitors are selected so that the (otherwise conventionally constructed) oscillator O is detuned such that the resulting change in the carrier frequency lies in the order of magnitude of the data rate. The time characteristic of the carrier frequency variation is limited, on one hand, by the scope of the data message and the transmission rate and, on the other hand, by the required response time of the system, so that several tens of milliseconds are typically required for each transmission procedure (according to the current state of knowledge) and a number of between two and around ten transmissions are possible.

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 1, 2 and 10 - 21 are obvious over U. S. Patent No. 6,384,710 to LeMense et al in view of U. S. Patent No. 6,393,071 to Bourzeix and U. S. Patent No. 4,523,184 to Abel under 35 U.S.C. § 103.

2. Whether or not claims 3 - 8 are obvious over U. S. Patent No. 6,384,710 to LeMense et al in view of U. S. Patent No. 6,393,071 to Bourzeix, U. S. Patent No. 4,523,184 to Abel and U. S. Patent No. 6,314,125 to Shanbhag under 35 U.S.C. § 103.

Argument:

I. **Whether or not claims 1, 2 and 10 - 21 are obvious over U. S. Patent No. 6,384,710 to LeMense et al in view of U. S. Patent No. 6,393,071 to Bourzeix and U. S. Patent No. 4,523,184 to Abel under 35 U.S.C. § 103.**

In item 2 of the final Office Action dated December 6, 2006 (the "**final Office Action**"), claims 1, 2 and 10 - 21 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 6,384,710 to LeMense et al ("**LEMENSE**") in view of U. S. Patent No. 6,393,071 to Bourzeix ("**BOURZEIX**") and U. S. Patent No. 4,523,184 to Abel ("**ABEL**").

Appellants respectfully traverse the above rejections.

A. **The prior art references fail to teach or suggest, among other limitations of Appellants' claims, receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a**

nominal carrier frequency, as required by Appellants' independent claims 1, 11, 12, 16 and 20.

Appellants' maintain that the combination of references cited in item 2 of the Office Action fails to teach or suggest all limitations of Appellants' independent claims 1, 11, 12, 16 and 20. More particularly, Appellants' independent claims 1, 11 and 20 recite, among other limitations:

> receiving and processing the data messages transmitted on the at least two different carrier frequencies **within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.** [emphasis added by Appellants]

Similarly, Appellants' independent claims 12 and 16 recite, among other limitations:

> a receiver for receiving and processing the data messages transmitted on the **at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.** [emphasis added by Appellants]

The above limitation of Appellants' claims is supported by the specification of the instant application, for example, on page 6 of the instant application, line 20 - page 7, line 13, which states:

> The proposed method, which is referred to below as the Frequency Offset Re-Transmission ("FORT") method, generally offers advantages, even in its commonest form, **if the receiver reveals a performance dependency on the carrier frequency or the carrier frequency/interference frequency ratio,** which can be derived even from statistical analysis, i.e., if the existence of an interference source is to be assumed beyond the possible transmission duration, the source, of course, has a specific, more or less broad interference frequency spectrum, and the probability of a reduction in the interference rises with an increase in the effective increase in bandwidth of the user data signal transmission - achieved through multiple transmission at different frequencies.

> Due to the tolerances, low-cost systems must have a more broadband construction than is actually necessary. **As such, the receiver is able to process not only signals at the nominal carrier frequency, but also signals with slightly deviating carrier frequencies (typically +/- 300 ppm) (→ receiver bandwidth).** [emphasis added by Appellants]

Page 3 of the **final Office Action** alleges that the above limitation of Appellants' claims is disclosed in Abel, stating:

> Abel teaches a receiver bandpass filter (71) tuned to a nominal transmission frequency and **having a bandwidth of 10 MHz in order to accommodate transmission deviation of +/-2.5 MHz.** See col. 7, lines 64-68 and col. 9, lines 60-63.
>
> Thus it would have been obvious to one skilled in the art at the time the invention was made to provide the reception of the carrier frequencies with a receiver bandwidth in the range of a predetermined extend deviating from the normal carrier frequencies for the purpose of receiving transmission even if the carrier frequencies slightly deviates from the nominal frequencies with variations in element characteristics. [emphasis added by Appellants]

Appellants' respectfully disagree with the statement in the Office Action that the combination of cited references would render obvious Appellants' claims. More particularly, as stated above, Appellants' claims require, among other limitations, receiving and processing the data messages transmitted on the at least two different carrier frequencies **within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency**. However, none of the references cited in the Office Action, including the ABEL reference, teach or suggest, among other limitations of Appellants' claims, receiving and processing the data messages transmitted on the at least two different carrier frequencies **within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency**.

Rather, the **ABEL** reference (alleged in the Office Action to disclose the above limitation of Appellants' claims) discloses a supervised wireless security system. Col. 7 of **ABEL,** lines 64 - 68 (cited in the Office Action), state:

> The nominal center frequency of the preferred embodiment is **314 MHz**, which may vary slightly with variations in element characteristics; the frequency deviation of the transmitter of the preferred embodiment is ± **2.5 MHz**. [emphasis added by Appellants]

However, the extent of deviation of **2.5 MHz** at a nominal frequency of **314 MHz** is about **0.8 %,** corresponding to a deviation of **8,000 ppm**. **A range of deviation of 8,000 ppm, as taught by ABEL, is much greater than the defined range of 300 ppm**, recited in Appellants' independent claims. In fact, none of the cited references disclose Appellants' particularly claimed range of deviation of +/- 300 ppm. The **ABEL** reference, cited in the Office Action as allegedly disclosing this limitation of Appellants' independent claims, not only does **not** disclose a deviation in the range of +/- 300 ppm, as required by Appellants' claims, but specifically teaches away from Appellants' claims by emphasizing a range of deviation of **8,000 ppm**. None of the other references cited in the Office Action, cure the above-discussed deficiency of the **ABEL** reference.

The Advisory Action mailed on February 20, 2007 (the "**Advisory Action**") addressed Appellants' arguments against the **ABEL,** stating:

> Applicant traverses the rejection of claims by asserting that the extent of frequency deviation taught in the Abel patent is about 8,000 ppm, "much greater" than 300 ppm recited in the claims. The Abel patent was provided to establish a benefit of RF receivers that are designed to have tolerance as to reception bandwidth, i.e., the accommodation of transmission bandwidth. The exact range of allowed frequency deviation is a matter of design choice since there is a trade off between the

> complexity of the receiver and the fine deviation range desired as well as observed frequency deviation. Further, it should be noted that the specification fails to show the criticality of the recited 300 ppm.

As such, the Examiner failed to point out where in **ABEL** there is any teaching of Appellants' claimed at least two different carrier frequencies within the one transmission channel **defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency**. Rather, the Examiner seems to acknowledge the failure of **ABEL**, but justifies it by attempting to trivialize these limitations of Appellants' claims, i.e., stating that the **ABEL** reference is being cited only "to establish a benefit of RF receivers that are designed to have tolerance as to reception bandwidth" and that Appellants' claimed range of +/- 300 ppm deviating from a nominal carrier frequency is merely "a matter of design choice". The Examiner further failed to give patentable weight to the above-limitation of Appellants' claims, alleging that Appellants' "specification fails to show the criticality of the recited 300 ppm". Appellants respectfully disagree. The setting of a limit in the range of deviation from a nominal carrier frequency to +/- 300 ppm is **not** merely a design choice, as alleged in the Office Action. Rather, Appellants clearly teach the criticality of this range in the specification of the instant application, for example, on page 7 of the instant application, lines 8 - 13, which state:

> Due to the tolerances, low-cost systems must have a more broadband construction than is actually necessary. **As such, the receiver is able to process not only signals at the nominal carrier frequency, but also signals with slightly deviating carrier frequencies (typically +/- 300 ppm) (→ receiver bandwidth).** [emphasis added by Appellants]

Appellants' claims require, among other limitations, receiving and processing the data messages transmitted on the **at least two different carrier frequencies**

within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency. It is the burden of the Examiner to clearly show every limitation of Applicants' claims in the cited references. However, in the present case, the Examiner has failed to provide a reference disclosing the above limitations of Appellants' claims, among others.

As such, all of Appellants' claims are believed to be patentable over the **ABEL, BOURZEIX** and **LEMENSE** references, as none of those references teach or suggest, among other limitations of Appellants' claims, receiving and processing the data messages transmitted on the at least two different carrier frequencies **within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency**.

The **SHANBHAG** reference, cited in the **final Office Action** in combination with **LEMENSE, BOURZEIX** and **ABEL** against Applicants' dependent claims 3 - 8, does not cure the above-discussed deficiencies of the **LEMENSE, ABEL** and **BOURZEIX** references. As such, Appellants' independent claims are believed **not** to be obvious over **BOURZEIX, LEMENSE, ABEL,** and/or **SHANBHAG**, taken alone, or in any combination.

B. Applicants' claimed invention is not obvious over the combination of prior art references, alleged in the final Office Action.

Further, neither the **ABEL, BOURZEIX,** and **LEMENSE** references, nor in the general knowledge in the art, would render obvious Appellants' claims, in the manner suggested in the Office Action. First, a person of ordinary skill in this art

would **not** reasonably to combine **LEMENSE** with **BOURZEIX**, in the manner suggested in the Office Action. Instead, as will be demonstrated herebelow, the combination of **LEMENSE**, **ABEL** and **BOURZEIX** **teaches away** from the invention of Appellants' claims.

More particularly, the transmitter unit of **LEMENSE** transmits a first frequency of **342.4 MHz** and a second frequency of **385.2 MHz**, both of which deviate from a middle or reference frequency **of 363.8 MHz** **by 21.4 MHz**. Thus, assuming that a single oscillator is used in the transmitter of **LEMENSE**, that oscillator would require **a very large** detuning range of about **5.88 % or 58,800 ppm** (i.e., for a deviation of 21.4 MHz around a middle frequency of 363.8 MHz). **However, a detuning value of the magnitude required in LEMENSE would exceed the capabilities of a conventional oscillator crystal**. The instant application emphasizes the use of a **conventional oscillator crystal.** See, for example, page 14 of the instant application, line 16; and claims 1, 11, 12, 16 and 20 "an oscillating crystal". As such, a person of ordinary skill in this art, would **not** think to replace the oscillator in **LEMENSE** with the oscillator **crystal** disclosed in **BOURZEIX**, because the person of skill in the art would **know** that a conventional oscillator **crystal** could not be detunable over the range required by the teachings of **LEMENSE**.

As such, the general knowledge in the art **would motivate against** the modification of **LEMENSE** suggested in the Office Action. As there is no teaching or suggestion in the references to make such a substitution, and because the general knowledge of a person or skill in this art would teach **against** such a substitution, Appellants'

claims are not believed to be obvious in view of **LEMENSE** and **BOURZEIX**, with or without **ABEL**.

Further, the **BOURZEIX** reference only discloses detuning an oscillator crystal **35 kHz** around a carrier frequency of **13 MHz**, which corresponds to **2,700 ppm**. As such, a person skilled in the art would not substitute the **oscillator crystal** of **BOURZEIX** into the transmitter of **LEMENSE**, since **BOURZEIX** does **not** teach or suggest that the **oscillator crystal** of **BOURZEIX** is detunable in a range of **58,800 ppm** (i.e., for a deviation of 21.4 MHz around a middle frequency of 363.8 MHz), as required by the teachings of **LEMENSE**. Additionally, the teaching in **BOURZEIX** of a range of deviation of 2,700 ppm, supports and further reinforces the general knowledge of a person skilled in the art, that a detunable **crystal** oscillator can **not** have a detuning range of **58,800 ppm** (i.e., at least not while having frequency stabilizing elements, which are necessary for achieving a predetermined nominal frequency).

As such, a person of ordinary skill in the art, reading **LEMENSE** and **BOURZEIX**, would not be provided with a teaching, suggestion or motivation to substitute the oscillator of **LEMENSE** with **a crystal oscillator**, as in **BOURZEIX**. In fact, the general knowledge in the art would teach **against** such a substitution.

The **ABEL** reference does **not** cure the above-discussed deficiencies of the **LEMENSE** and **BOURZEIX** references. As such, Appellants' independent claims are believed **not** to be obvious over **BOURZEIX, LEMENSE,** and/or **ABEL,** taken alone, or in any combination.

Further still, a person of ordinary skill in this art, upon reading **LEMENSE, BOURZEIX** and **ABEL,** would **not** receive any teaching suggestion or motivation to combine **LEMENSE** with **ABEL**, in the manner suggested in the Office Action. More particularly, the receiver of **LEMENSE** must receive two signals having first and second different frequencies of 342.4 MHz and 385.2 MHz, respectively. Thus, as discussed elsewhere herein, the receiver of **LEMENSE** is required to have a detection range of **58,800 ppm,** about a nominal frequency of **363.8 MHz.** However, Appellants believe that, to operate in the environment required in **LEMENSE** (i.e., 58,800 ppm about a nominal frequency of 363.8 MHz), the receiver disclosed in **Abel** would need to be **greatly modified** to even work with the transmitter of **LEMENSE**. Moreover, because **LEMENSE** discloses a receiver unit (for example as shown in Fig. 9 of **LEMENSE**) that is **especially adapted** for receiving the two different signals on the respective first and second frequencies of **LEMENSE**, there would be absolutely no teaching, suggestion or motivation for a person of ordinary skill in this art to even look for another receiver, for the transmitter of **LEMENSE**. Rather, **LEMENSE** provides the ideal receiver, suited to the transmitter of **LEMENSE**, while, any other receiver unit would have to be modified in order to receive the two frequencies of **LEMENSE,** which are separated by 2 * 21.4 MHz. Thus a person of ordinary skill in this art, reading **BOURZEIX, LEMENSE** and **ABEL**, would not be provided with any teaching, suggestion or motivation to combine those references in the manner suggested in the Office Action. Absent such teaching, suggestion or motivation, Appellants' claims cannot be found to be obvious over the **BOURZEIX, LEMENSE** and **ABEL** references.

Additionally, a person of ordinary skill in this art would be led away from combining **ABEL** and **LEMENSE**, because, among other reasons, **ABEL** discloses requiring a certain lock-on pulse to be generated at the beginning of each transmission from each transmitter, wherein such a lock-on pulse includes a sweep of the actual instantaneous oscillator frequency passing relatively slow through the nominal frequency to which the receiver is tuned. See, for example, col. 15 of **ABEL**, lines 24 - 33. However, **LEMENSE** neither teaches, nor suggests, each transmitter being required to generate such a lock-on sweeping through a certain nominal frequency. Rather, **LEMENSE** discloses generating two signals on exactly two frequencies (which than can be received by the special construction of the receiver unit shown, for example, in Fig. 9 of **LEMENSE**). Thus, since the device disclosed in **LEMENSE** would not able to initiate proper operation of the receiver unit disclosed in **ABEL**, a person of ordinary skill in this art would be led away from any combination of **LEMENSE** and **ABEL**. The **BOURZEIX** reference additionally does not cure the above-discussed deficiencies in the teachings of **LEMENSE** and **ABEL**.

For the above reasons, among others, Appellants maintain that a person of ordinary skill in this art would <u>not</u> combine the cited references in the manner asserted in the **final Office Action**. Applicants' additionally incorporate herein, by reference, the remarks made in section I, above, and reemphasize that, even if combined in the manner suggested in the **final Office Action**, the references would still fail to teach or suggest, among other limitations of Appellants' claims, receiving and processing the data messages transmitted on the at least two different carrier frequencies **within the one transmission channel defined by a receiver**

bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency. Thus, Appellants' claims are believed to be patentable over the **LEMENSE**, **ABEL** and **BOURZEIX** references, whether taken alone, or in combination.

II **Whether or not claims 3 - 8 are obvious over U. S. Patent No. 6,384,710 to LeMense et al in view of U. S. Patent No. 6,393,071 to Bourzeix, U. S. Patent No. 4,523,184 to Abel and U. S. Patent No. 6,314,125 to Shanbhag under 35 U.S.C. § 103.**

In item 4 of the **final Office Action**, claims 3 - 8 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **LEMENSE** in view of **BOURZEIX** and **ABEL**, and further in view of U. S. Patent No. 6,314,125 to Shanbhag ("**SHANBHAG**").

Appellants incorporate herein, by reference the arguments made above showing the patentability of independent claim 1 (from which claims 3 - 8, ultimately, depend) over the combination of **LEMENSE** in view of **BOURZEIX** and **ABEL**. More particularly, Appellants' claims are believed to be patentable over the **ABEL**, **BOURZEIX** and **LEMENSE** references, as none of those references teach or suggest, among other limitations of Appellants' claims, receiving and processing the data messages transmitted on the at least two different carrier frequencies **within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.**

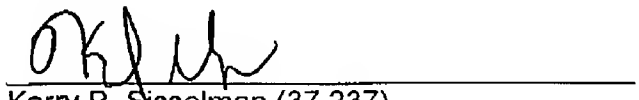
The **SHANBHAG** reference, cited in the **final Office Action** in combination with **LEMENSE**, **BOURZEIX** and **ABEL** against Applicants' dependent claims 3 - 8,

does **not** cure the above-discussed deficiencies of the **LEMENSE, ABEL** and **BOURZEIX** references. As such, Appellants' independent claims are believed **not** to be obvious over **BOURZEIX, LEMENSE, ABEL,** and/or **SHANBHAG**, taken alone, or in any combination.

III. Conclusion.

In view of the foregoing, all of Appellants' claims are believed to be patentable over the **ABEL, BOURZEIX, LEMENSE** and **SHANBHAG** references, whether taken alone, or in combination. The honorable Board Is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,



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Claims Appendix:

1. In a radio access control system for a motor vehicle, a method for carrying out simplex transmission of a data message modulated onto a carrier frequency, which comprises:

wirelessly transmitting, in the radio access control system, a data message containing an access code more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference;

changing the different carrier frequencies only within one single transmission channel by detuning, with at least one capacitor, an oscillating crystal of a carrier frequency generator; and

receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.

2. The method according to claim 1, which further comprises using a different carrier frequency for each of more than two transmissions.

3. The method according to claim 1, which further comprises applying spreading to the data message by a predefined spread sequence.

4. The method according to claim 3, wherein the at least two different carrier frequencies have a frequency difference in an order of magnitude of a data rate of the data message

5. The method according to claim 3, wherein the at least two different carrier frequencies have a frequency difference in a range between one quarter and two times a data rate of the data message.

6. The method according to claim 1, which further comprises applying spreading to the data message by a Direct Sequence Spread Spectrum method.

7. The method according to claim 6, wherein the at least two different carrier frequencies have a frequency difference in an order of magnitude of a data rate of the data message

8. The method according to claim 6, wherein the at least two different carrier frequencies have a frequency difference in a range between one quarter and two times a data rate of the data message.

10. The method according to claim 1, which further comprises setting the at least two different carrier frequencies within a tolerance range of not more than ± 10%.

11. In a radio access control system for a motor vehicle, a method for simplex radio transmission in a radio access control system for a motor vehicle, which comprises:

wirelessly transmitting, in the radio access control system, a data message containing an access code more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference;

changing the different carrier frequencies only within one single transmission channel by detuning, with at least one capacitor, an oscillating crystal of a carrier frequency generator; and

receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.

12. In a radio access control system for a motor vehicle, a device for carrying out simplex transmission of a data message modulated onto a carrier frequency, comprising:

a carrier frequency generator for generating different carrier frequencies located only in a single narrowband channel, said carrier frequency generator having at least one capacitor and a detunable oscillator crystal detuned through said at least one capacitor;

a transmitter modulating data messages containing an access code with said carrier frequencies and wirelessly transmitting the data messages in temporal succession in the radio access control system; and

a receiver for receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.

13. The device according to claim 12, wherein:

said at least one capacitor is a plurality of capacitors; and

a switch respectively connects at least one of said plurality of capacitors to said oscillator crystal to generate different carrier frequencies.

14. The device according to claim 13, wherein said switch is a program-controlled switch.

15. The device according to claim 13, including a carrier frequency control device for setting different carrier frequencies in a case of multiple transmission, said control device connected to at least one of the group consisting of said plurality of capacitors and said switch.

16. In a radio access control system for a motor vehicle, a device for carrying out simplex transmission of a data message modulated onto a carrier frequency, comprising:

a carrier frequency generator for generating different carrier frequencies located only in a single narrowband channel, said carrier frequency generator having at least one capacitor and a detunable oscillator crystal detuned through said at least one capacitor;

a transmitter modulating data messages containing an access code with said carrier frequencies and wirelessly transmitting the data messages more than one time using at least two different carrier frequencies in temporal succession In the radio access control system to Increase immunity to interference, said carrier frequencies only changed to have said carrier frequencies occur within one single transmission channel; and

a receiver for receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.

17. The device according to claim 16, wherein:

said at least one capacitor is a plurality of capacitors; and

a switch respectively connects at least one of said plurality of capacitors to said oscillator crystal to generate different carrier frequencies.

18. The device according to claim 17, wherein said switch is a program-controlled switch.

19. The device according to claim 17, including a carrier frequency control device for setting different carrier frequencies in a case of multiple transmission, said control device connected to at least one of the group consisting of said plurality of capacitors and said switch.

20. In a radio access control system for a motor vehicle, a method for carrying out simplex transmission of a data message modulated onto a carrier frequency, which comprises:

wirelessly transmitting to a receiver In the motor vehicle, a data message containing an access code more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference;

changing the different carrier frequencies only within one single transmission channel by detuning, with at least one capacitor, an oscillating crystal of a carrier frequency generator; and

receiving and processing the data messages transmitted on the at least two different carrier frequencies within the one transmission channel defined by a

receiver bandwidth in the range of +/- 300 ppm deviating from a nominal carrier frequency.

21. The method of claim 20, wherein the access code provides access to the motor vehicle.

Evidence Appendix:

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or any other evidence has been entered by the Examiner and relied upon by appellant in the appeal.

Related Proceedings Appendix:

No prior or pending appeals, interferences or judicial proceedings are in existence which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. Accordingly, no copies of decisions rendered by a court or the Board are available.